

WHAT IS CLAIMED IS:

- 1           1.     A method for encoding and decoding input data, comprising:
  - 2           (a) generating a key comprising a list of a plurality of binary values, wherein
  - 3           the key is made available to a user to enable decoding;
  - 4           (b) encoding the input data by:
    - 5           (i) using the key to initialize a replacement list;
    - 6           (ii) determining whether to replace strings in the input data with a
    - 7           string reference to a matching string value, wherein the input data not
    - 8           replaced with reference to one matching string values comprises one or more
    - 9           literals;
    - 10          (iii) replacing each literal with a literal reference to one entry in the
    - 11          replacement list matching the literal; and
    - 12          (c) decoding the encoded input data by:
      - 13          (i) accessing the generated key in response to user input; and
      - 14          (ii) using the accessed key to decode the literals replaced with literal
      - 15          references to entries in the replacement list.
  - 1           2.     The method of claim 1, wherein the literal comprises a byte of the
  - 2           input data.
  - 1           3.     The method of claim 1, wherein the user input comprises the generated
  - 2           key transferred by the user to the decoder.
  - 1           4.     The method of claim 1, wherein the user input comprises a password,
  - 2           further comprising:
    - 3           using the password to generate the key used to initialize the replacement list
    - 4           during encoding.

1           5.       The method of claim 1, wherein each string reference comprises a  
2 copy pointer to a previous instance of the string in a history buffer generated while  
3 scanning the input data.

1           6.       The method of claim 1, wherein each string reference addresses one  
2 entry in a compression dictionary comprising strings repeated in the input data.

1           7.       The method of claim 1, wherein during encoding all the input data is  
2 replaced with one string reference or literal reference.

1           8.       The method of claim 1, wherein the replacement list includes 256  
2 entries having every possible permutation of a byte.

1           9.       The method of claim 1, wherein generating the key further comprises:  
2 randomizing an order of the entries in the replacement list.

1           10.      The method of claim 1, wherein the replacement list comprises a most  
2 recently used (MRU) list, and wherein after replacing one literal with one literal  
3 reference to one entry in the replacement list during encoding further performing:  
4           promoting the entry matching the replaced literal to a first entry in the  
5 replacement list.

1           11.      The method of claim 1, wherein after replacing one literal with the  
2 literal reference to one entry in the replacement list during encoding further  
3 performing:  
4           generating a pseudo random number; and  
5           using the pseudo random number to determine whether to promote the entry  
6 matching the replaced literal to a first entry in the replacement list.

1           12.     The method of claim 1, wherein a first binary value is prepended to  
2 each string reference in the encoded data and a second binary value is prepended to  
3 the literal references in the encoded data.

1           13.     The method of claim 12, wherein encoding the input data further  
2 comprises:  
3           generating a pseudo random number; and  
4           using the generated pseudo random number to encrypt at least one prepended  
5 first or second binary value.

1           14.     The method of claim 1, wherein a first binary value is prepended to  
2 each string reference in the encoded data and wherein one of a plurality of different  
3 binary values is prepended to each literal reference in the encoded data, wherein each  
4 of the plurality of binary values prepended to literal references corresponds to a  
5 section of the replacement list and wherein the literal reference references one entry  
6 in the section corresponding to the prepended binary value.

1           15.     The method of claim 1, further comprising:  
2           adding a number of bits from the encoded data plurality of the references to  
3 either the matching string value in the input data or the replacement to one bit  
4 package; and  
5           for each bit package including, performing:  
6                 (i) generating a pseudo random number; and  
7                 (ii) using the generated pseudo random number to encrypt the bit  
8 package including the encoded input data.

1           16.    The method of claim 1, wherein encoding the input data further  
2 comprises:  
3           using at least one random number generator to generate random numbers to  
4 encrypt the encoded input data; and  
5           using the at least one random number generator to generate random numbers  
6 to decrypt the encoded data.

1           17.    A system for encoding and decoding input data, comprising:  
2           (a) means for generating a key comprising a list of a plurality of binary values,  
3 wherein the key is made available to a user to enable decoding;  
4           (b) means for encoding the input data by:  
5               (i) using the key to initialize a replacement list;  
6               (ii) determining whether to replace strings in the input data with a  
7 string reference to a matching string value, wherein the input data not  
8 replaced with reference to one matching string values comprises one or more  
9 literals;  
10           (iii) replacing each literal with a literal reference to one entry in the  
11 replacement list matching the literal; and  
12           (c) means for decoding the encoded input data by:  
13               (i) accessing the generated key in response to user input; and  
14               (ii) using the accessed key to decode the literals replaced with literal  
15 references to entries in the replacement list.

1           18.    The system of claim 17, wherein the means for encoding the input data  
2 further performs after replacing one literal with the literal reference to one entry in  
3 the replacement list during encoding:  
4           generating a pseudo random number; and

5 using the pseudo random number to determine whether to promote the entry  
6 matching the replaced literal to a first entry in the replacement list.

1 19. The system of claim 17, wherein the means for encoding the input data  
2 further performs prepending a first binary value to each string reference in the  
3 encoded data and prepending a second binary value to the literal references in the  
4 encoded data.

1 20. The system of claim 17, wherein encoding the input data further  
2 performs:  
3 using at least one random number generator to generate random numbers to  
4 encrypt the encoded input data; and  
5 using the at least one random number generator to generator random numbers  
6 to decrypt the encoded data.

1 21. An article of manufacture including code for encoding and decoding  
2 input data, wherein the code causes operations to be performed comprising:  
3 (a) generating a key comprising a list of a plurality of binary values, wherein  
4 the key is made available to a user to enable decoding;  
5 (b) encoding the input data by:  
6 (i) using the key to initialize a replacement list;  
7 (ii) determining whether to replace strings in the input data with a  
8 string reference to a matching string value, wherein the input data not  
9 replaced with reference to one matching string values comprises one or more  
10 literals;  
11 (iii) replacing each literal with a literal reference to one entry in the  
12 replacement list matching the literal; and  
13 (c) decoding the encoded input data by:

14 (i) accessing the generated key in response to user input; and  
15 (ii) using the accessed key to decode the literals replaced with literal  
16 references to entries in the replacement list.

1 22. The article of manufacture of claim 21, wherein the literal comprises a  
2 byte of the input data.

1 23. The article of manufacture of claim 21, wherein the user input  
2 comprises the generated key transferred by the user to the decoder.

1 24. The article of manufacture of claim 21, wherein the user input  
2 comprises a password, further comprising:  
3 using the password to generate the key used to initialize the replacement list  
4 during encoding.

1 25. The article of manufacture of claim 21, wherein each string reference  
2 comprises a copy pointer to a previous instance of the string in a history buffer  
3 generated while scanning the input data.

1 26. The article of manufacture of claim 21, wherein each string reference  
2 addresses one entry in a compression dictionary comprising strings repeated in the  
3 input data.

1 27. The article of manufacture of claim 21, wherein during encoding all  
2 the input data is replaced with one string reference or literal reference.

1 28. The article of manufacture of claim 21, wherein the replacement list  
2 includes 256 entries having every possible permutation of a byte.

1           29.    The article of manufacture of claim 21, wherein generating the key  
2 further comprises:  
3           randomizing an order of the entries in the replacement list.

1           30.    The article of manufacture of claim 21, wherein the replacement list  
2 comprises a most recently used (MRU) list, and wherein after replacing one literal  
3 with one literal reference to one entry in the replacement list during encoding further  
4 performing:  
5           promoting the entry matching the replaced literal to a first entry in the  
6 replacement list.

1           31.    The article of manufacture of claim 21, wherein after replacing one  
2 literal with the literal reference to one entry in the replacement list during encoding  
3 further performing:  
4           generating a pseudo random number; and  
5           using the pseudo random number to determine whether to promote the entry  
6 matching the replaced literal to a first entry in the replacement list.

1           32.    The article of manufacture of claim 21, wherein a first binary value is  
2 prepended to each string reference in the encoded data and a second binary value is  
3 prepended to the literal references in the encoded data.

1           33.    The article of manufacture of claim 32, wherein encoding the input  
2 data further comprises:  
3           generating a pseudo random number; and  
4           using the generated pseudo random number to encrypt at least one prepended  
5 first or second binary value.

1           34.    The article of manufacture of claim 21, wherein a first binary value is  
2    prepended to each string reference in the encoded data and wherein one of a plurality  
3    of different binary values is prepended to each literal reference in the encoded data,  
4    wherein each of the plurality of binary values prepended to literal references  
5    corresponds to a section of the replacement list and wherein the literal reference  
6    references one entry in the section corresponding to the prepended binary value.

1           35.    The article of manufacture of claim 21, further comprising:  
2            adding a number of bits from the encoded data plurality of the references to  
3    either the matching string value in the input data or the replacement to one bit  
4    package; and  
5            for each bit package including, performing:  
6                (i) generating a pseudo random number; and  
7                (ii) using the generated pseudo random number to encrypt the bit  
8    package including the encoded input data.

1           36.    The article of manufacture of claim 21, wherein encoding the input  
2    data further comprises:  
3            using at least one random number generator to generate random numbers to  
4    encrypt the encoded input data; and  
5            using the at least one random number generator to generator random numbers  
6    to decrypt the encoded data.